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PALEONTOLOGY.

Harris's Catalogue of Australasian Tertiary Mollusca.¹ — The catalogues published by the trustees of the British Museum generally contain much more than their titles imply. In them will often be found some of the latest applications of the laws of evolution and the elucidation of new and important principles of morphology. Discussions of this nature have added value and weight from the intimate association of specimens and ideas, for usually curators of collections and custodians of ideas are too frequently dissociated. It is, therefore, a wise policy to engage the services of the highest talent in the preparation of the catalogues or reports on various collections or classes of organisms.

Thirteen volumes on fossil vertebrates, eight on fossil invertebrates, and three on fossil plants have already been published in this series, and Dr. Woodward states that thirty volumes more will be needed to include the remainder of the plants and Mollusca, the whole of the Brachiopoda, Annelida, Arthropoda, Echinodermata, and Coelenterata.

The present catalogue of the Tertiary Mollusca of Australasia is based upon the study of large collections, especially rich in well-preserved Gastropoda. Mr. Harris has thus been enabled to study the larval shells and the stages of growth with accuracy and precision. In studies of phylogenies and in the systematic classification of the Gastropoda the results are important. The scaphopods and lamellibranchs are also included, but owing to meager material they have afforded insufficient data for general conclusions.

Some valuable suggestions are given governing the correlations of phylogeny with chronology. Thus, a genus that has survived from early Mesozoic times, with but little modification in the later stages of its history, has had its day and settled down to a more or less fixed form. Such a genus is of little use for homotaxial purposes, though interesting phylogenetically. In the Tertiary the determination of homotaxis can best be based upon families which originated in Jurassic or Cretaceous times and reached the Eocene with strong tendencies to variation; yet, at the same time, the members should be capable of wide and rapid dispersion.

¹ Catalogue of the Tertiary Mollusca in the Department of Geology, British Museum (Nat. Hist.). Pt. i. The Australasian Tertiary Mollusca. By George F. Harris, F.G.S. 8vo, pp. i-xxvi, 1-407. Pl. I-VIII. London. Printed for the trustees. 1897.

The general law is suggested that when the main features of ornament are foreshadowed in the early nepionic or brephic stage, and especially when they obtain even in the protoconch, that ornament may be regarded as of value in the determination of species. On the contrary, when the ornament does not make its appearance until the late neanic or adolescent stage, and, even in an elementary sense, is not completed until what may be regarded, by analogy, as the early mature stage, that ornament merely characterizes the individual, and is only of negative use for the purposes of classification.

As is well known, the size of the protoconch is variable, even in the offspring of a single individual, that difference being commonly attributed to carnivorous proclivities on the part of the larger specimens when in the embryonic stage. The author also notes that the size of the protoconch does not seem to have much influence in determining the size of the shell in the adult. The larger protoconch is not very often accompanied by the production of a larger adult shell than that which comes from a much smaller protoconch, that is, in the same species. There are, however, exceptions to this, and, correlatively, it may be noted that the shape of the protoconch occasionally determines the general shape of the shell.

Further interesting observations are made on the development of the Volutidæ, the columellar plications in *Mitra*, and the recurrence of a type of ornamentation in a species of *Cerithium*. All the genera are briefly described, and the type species is given. The notes on the species are preceded by a list of the synonymy and bibliographic references.

Some changes in the nomenclature of the genera will not meet with general endorsement, although the principles adopted are, for the most part, those approved by the best authorities. Thus, the name *Nuculana* (Link, 1807) is used instead of *Leda* (Schum., 1817) on the ground of priority. *Nuculana*, however, was given by Link as a mere verbal substitute for *Nucula* (Lam., 1799), as Dr. W. H. Dall and others have shown. Link's diagnosis applies to *Nucula* and not to *Leda*, for he says that the shell is "smooth, closed all round." *Nuculana* (Link *non* Adams) is therefore "an exact synonym" of *Nucula*, and cannot be sustained on the ground of priority. Consequently the family name *Nuculanidæ*, Adams, cannot be retained for *Ledidæ*.

C. E. B.